WHAT IS CLAIMED IS:

1. An optical transmission line constructing method comprising the steps of connecting a plurality of optical fibers differing from each other in terms of a transmission characteristic; making inspection light incident on an entrance end of the connected plurality of optical fibers; detecting, on the entrance end side, respective return light components of the inspection light occurring at individual positions of the plurality of optical fibers in a longitudinal direction thereof; evaluating a characteristic information distribution of return light in the longitudinal direction of the plurality of optical fibers; and constructing an optical transmission line according to a result of the evaluation.

2. An optical transmission line constructing method according to claim 1, wherein the transmission characteristic is a mode field diameter; and wherein the characteristic information is a power level of return light corresponding to the mode field diameter.

3. An optical transmission line constructing method according to claim 1, wherein the inspection light includes first and second wavelengths of light; wherein the transmission characteristic is chromatic dispersion; and wherein the characteristic information is a difference between respective arrival times of the first and second wavelengths at the entrance end.

4. An optical transmission line constructing method according to claim 1, wherein the transmission characteristic is transmission loss; and wherein the characteristic information is a power level of return light corresponding to the transmission loss.

5. An optical transmission line constructing method according to claim 1, wherein the transmission characteristic is a frequency shift amount; and wherein the characteristic information is a frequency shift of return light inherent in each of the plurality of optical fibers.

6. An optical transmission line constructing method comprising the steps of choosing one of a plurality of optical fibers, included in a first optical cable, differing from each other in terms of a transmission characteristic, and choosing one of a plurality of optical fibers, included in a second optical cable, differing from each other in terms of the transmission characteristic; making inspection light incident on respective entrance ends of the chosen optical fibers; detecting, on the entrance end side, respective return light components of the inspection light occurring at individual positions of the plurality of optical fibers in a longitudinal direction thereof; evaluating a characteristic information distribution of return light in the longitudinal direction of the plurality of optical fibers; and constructing an optical transmission line according to a result of the

evaluation.

7. An optical transmission line constructing method according to claim 6, wherein the inspection light is made incident on the entrance ends of the optical fibers by way of a reference optical fiber having a reference transmission characteristic; wherein respective return light components of the inspection light occurring at individual positions of the reference optical fiber and optical fibers in the longitudinal direction are detected; and wherein the characteristic information of return light in the optical fibers is evaluated in comparison with characteristic information of return light in the reference optical fiber.

8. An optical transmission line constructing method comprising the steps of providing a plurality of transmission lines, each comprising at least two kinds of a plurality of optical fibers connected together differing from each other in terms of chromatic dispersion; measuring a dispersion distribution state of the transmission lines in a longitudinal direction thereof; choosing a branch transmission line connectable as a branch at a predetermined position in the longitudinal direction; and establishing a branch connection.

9. An optical transmission line constructing method comprising the steps of providing a plurality of transmission lines, each comprising at least two kinds of

a plurality of optical fibers connected together differing from each other in terms of chromatic dispersion; measuring a dispersion distribution state of the transmission lines in a longitudinal direction thereof; choosing a transmission line connectable as a transmission line to branch out; and establishing a branch connection.

10. An optical transmission line constructing method comprising the steps of measuring a dispersion distribution state in a longitudinal direction of a transmission line comprising at least two kinds of a plurality of optical fibers connected together differing from each other in terms of chromatic dispersion; specifying where a branch connection is possible in the longitudinal direction; and establishing a branch connection.

11. An optical transmission line constructing method comprising the steps of providing, in a first area, a first transmission line constructed by at least two kinds of optical fibers differing from each other in terms of polarity of chromatic dispersion at a predetermined signal light wavelength; providing, in a second area connected to the first area, second and third transmission lines, each constituted by at least two kinds of optical fibers connected together differing from each other in terms of polarity of chromatic dispersion at the predetermined signal light wavelength; connecting the second and third transmission lines to each other with an unknown dispersion distribution

state in a longitudinal direction thereof; and connecting the first and second transmission lines, so as to construct an optical transmission line; wherein a dispersion distribution state of transmission lines in the longitudinal direction thereof in the second area is measured so as to inspect the second transmission line where the optical transmission line achieves a desirable transmission characteristic.

12. An optical transmission line comprising positive and negative dispersion parts with positive and negative chromatic dispersions, respectively; wherein, in a portion where the positive and negative dispersion parts adjoin each other, a smaller mode field diameter in the positive and negative dispersion parts always has a ratio of 0.99 or less with respect to a greater mode field diameter therein.

13. An optical transmission line according to claim 12, wherein, in the adjoining portion, the mode field diameter of the positive dispersion part is greater than that of the negative dispersion part.

14. An optical transmission line according to claim 12, wherein, in the adjoining portion, the ratio of the mode field diameter of the negative dispersion part to that of the positive dispersion part is at least 0.75 but not greater than 0.99.

15. An optical transmission line comprising

positive and negative dispersion parts with positive and negative chromatic dispersions, respectively; wherein, in a portion where the positive and negative dispersion parts adjoin each other, the positive and negative dispersion parts exhibit respective transmission losses differing from each other by at least 0.01 dB at a predetermined wavelength.